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SUPPLEMENTAL WATERSHED WORK PLAN
FOR
WATERSHED PROTECTION, FLOOD PREVENTION, RECREATION
AND
AGRICULTURAL AND NON-AGRICULTURAL WATER MANAGEMENT
CHOCTAW CREEK WATERSHED
GRAYSON COUNTY, TEXAS



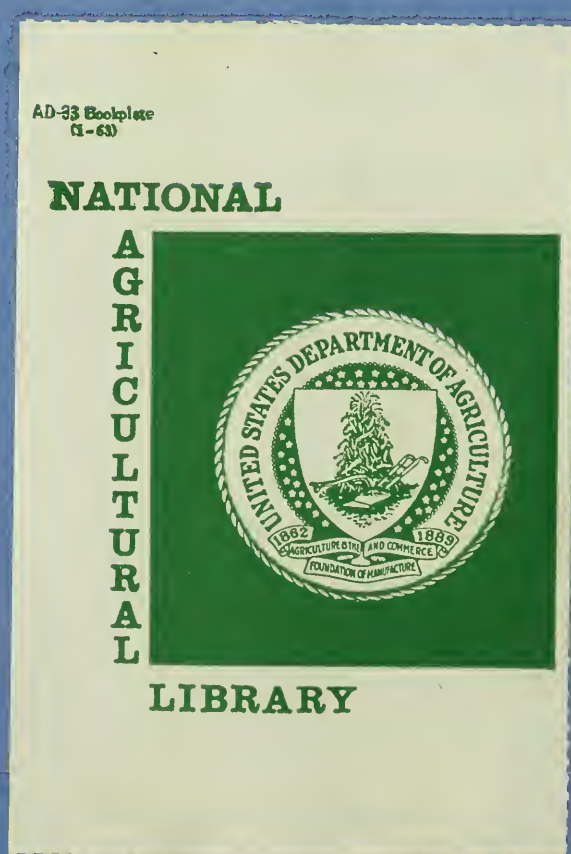
June 1970

TABLE OF CONTENTS

	<u>Page</u>
Problems Relating to Water Management	1
Works of Improvement To Be Installed	1
Explanation of Installation Costs	1
Project Benefits	2
Comparison of Benefits and Costs	2
Installation of Recreational Development	2
Operation and Maintenance of Recreational Development	3
 Tables:	
Table 1 - Estimated Project Installation Cost (Revised) . . .	4
Table 2 - Estimated Structure Cost Distribution (Revised) . .	5
Table 2A - Cost Allocation and Cost Sharing Summary (Revised)	7
Table 3 - Structure Data - Floodwater Retarding Structures (Revised)	8
Table 4 - Annual Cost (Revised)	10
Table 6 - Comparison of Benefits and Costs for Structural Measures (Revised)	11

Figures:

Figure 10 - Project Map



SUPPLEMENTAL WATERSHED WORK PLAN AGREEMENT

Between the

Choctaw Watershed Water Improvement District

Local Organization

Upper Elm-Red Soil and Water Conservation District

Local Organization

Grayson County Commissioners Court

Local Organization

City of Sherman

Local Organization

City of Denison

Local Organization

City of Bells

Local Organization

City of Howe

Local Organization

State of Texas

(hereinafter referred to as the Sponsoring Local Organization)

and the

Soil Conservation Service

United States Department of Agriculture

(hereinafter referred to as the Service)

Whereas, the Watershed Work Plan Agreement for the Choctaw Creek Watershed, State of Texas, executed by the Sponsoring Local Organizations named therein and the Service, became effective on the 12th day of October 1966; and

Whereas, in order to carry out the watershed work plan for said watershed, it has become necessary to modify said watershed Work Plan Agreement; and

Whereas, it has been found necessary to modify the Watershed Work Plan to change the scope of the project by replacing single-purpose floodwater retarding structure No. 10 with multiple-purpose structure No. 10A; and

Whereas, a Supplemental Watershed Work Plan, which modifies the Watershed Work Plan dated November 1965 for said Watershed, has been developed through the co-operative efforts of the Sponsoring Local Organizations and the Service, which plan is annexed to and made a part of this agreement;

Now, therefore, the Sponsoring Local Organization and the Service hereby agree upon the following modification of the terms, conditions, and stipulations of said Watershed Work Plan Agreement:

1. Paragraph numbered 3 is modified with respect to Structures 10 and 10A to read as follows:

The percentages of construction costs of structural measures to be paid by the Sponsoring Local Organization and by the Service are as follows:

<u>Works of Improvement</u>	<u>Sponsoring Local Organization</u> (percent)	<u>Service</u> (percent)	<u>Estimated Construction Cost</u> (dollars)
Multiple-Purpose Structure No. 10A (Sherman)	11.33	88.67	82,360

2. Paragraph numbered 4 is modified with respect to Structures 10 and 10A to read as follows:

The percentages of the cost for installation services to be borne by the Sponsoring Local Organization and the Service are as follows:

<u>Works of Improvement</u>	<u>Sponsoring Local Organization</u> (percent)	<u>Service</u> (percent)	<u>Estimated Installation Service Cost</u> (dollars)
Multiple-Purpose Structure No. 10A (Sherman)	11.33	88.67	19,575

3. The Sponsoring Local Organization and the Service further agree to all other terms, conditions, and stipulations of said Watershed Work Plan Agreement not modified herein.

Choctaw Watershed Water Improvement District
Local Organization

By T. G. McGraw
Title PRESIDENT
Address Sherman Texas 75090
Date Jan 25, 1971 Zip code

The signing of this agreement was authorized by a resolution of the governing body of the Choctaw Watershed WID

Local Organization

adopted at a meeting held on June 7, 1967

F. N. ROGERS
(Secretary, Local Organization)

Address Sherman Tx 75090
Zip Code

Date Jan 25, 1971

Upper Elm-Red Soil and Water Conservation District

Local Organization

By J. H. Bayer
Title Chairman

Address Muenster, Texas 76252
Zip Code

Date August 12, 1971

The signing of this agreement was authorized by a resolution of the governing body of the Upper Elm-Red Soil and Water Conservation District

Local Organization

adopted at a meeting held on August 12, 1971

KEITH KEMPLIN
(Secretary, Local Organization)

Address Valley View, Texas 76272
Zip Code

Date August 12, 1971

Grayson County Commissioners Court
Local Organization

By *Les Tribble*
Les Tribble
Title *County Judge*
County Judge
Address *Sherman, Texas*
Zip code
Date *7-6-71* *75090*

The signing of this agreement was authorized by a resolution of the governing body of the *Grayson Co*

Local Organization

adopted at a meeting held on *Dec 10, 1968*

Paul E. Lee
(Secretary, Local Organization)
Paul E. Lee
Address *Sherman, TX* *75090*
Zip Code
Date *7/6/71*

City of Sherman

Local Organization

By *S. E. Gillespie*
S. E. Gillespie
Title *MAYOR*
Mayor *P.O. Box 1106*
Address *SHERMAN, TEXAS* *75090*
Zip Code

Date *JULY 14, 1971*

The signing of this agreement was authorized by a resolution of the governing body of the *CITY OF SHERMAN*

Local Organization

adopted at a meeting held on *JULY 13, 1971*

J. Spears
(Secretary, Local Organization)
J. Spears *P.O. Box 1106*
Address *SHERMAN, TEX* *75090*
Zip Code
Date *JULY 14, 1971*

City of Denison
Local Organization

By Robert L. Cherry
Robert L. Cherry
Title Mayor

Address Denison, Texas 75020
Zip code

Date July 15, 1971

The signing of this agreement was authorized by a resolution of the governing body of the City of Denison

Local Organization

adopted at a meeting held on July 7, 1971

Louise Blanton
(~~Secretary~~ Local Organization)
City Clerk

Address Denison, Texas 75020
Zip Code

Date July 15, 1971

City of Bells

Local Organization

By W. Ray Rice
W. Ray Rice
Title Mayor

Address Bells Texas 75414
Zip Code

Date July 20, 1971

The signing of this agreement was authorized by a resolution of the governing body of the City of Bells

Local Organization

adopted at a meeting held on July 20, 1971

H. C. Young
(Secretary, Local Organization)
H. C. Young

Address Bells Tx 75414
Zip Code

Date July 20, 1971

City of Howe
Local Organization
By Lloyd W. Butts
Lloyd W. Butts
Title MAYOR
Mayor
Address Howe, Texas 75059
Zip Code
Date Aug. 5, 1971

The signing of this agreement was authorized by a resolution of the governing body of the City of Howe

Local Organization
adopted at a meeting held on Aug. 5, 1971

George Barnes
(Secretary, Local Organization)
GEORGE BARNES
Address Howe Texas 75059
Zip Code
Date Aug. 5 - 1971

Local Organization
By _____
Title _____
Address _____
Zip Code
Date _____

The signing of this agreement was authorized by a resolution of the governing body of the _____

Local Organization
adopted at a meeting held on _____

(Secretary, Local Organization)
Address _____
Zip Code
Date _____

Soil Conservation Service
United States Department of Agriculture
By M. J. Pearson Acting
State Conservationist
Date AUG 17 1971

SUPPLEMENTAL
WATERSHED WORK PLAN
FOR
WATERSHED PROTECTION, FLOOD PREVENTION, RECREATION,
AND
AGRICULTURAL AND NON-AGRICULTURAL WATER MANAGEMENT

CHOCTAW CREEK WATERSHED
Grayson County, Texas

Prepared Under the Authority of the Watershed
Protection and Flood Prevention Act, (Public Law
566, 83rd Congress, 68 Stat. 666), as amended.

Prepared By:

Choctaw Watershed Water Improvement District
Upper Elm-Red Soil and Water Conservation District
Grayson County Commissioners Court

City of Sherman

City of Denison

City of Bells

City of Howe

With Assistance By:

U. S. Department of Agriculture
Soil Conservation Service
June 1970

SUPPLEMENTAL
WATERSHED WORK PLAN
CHOCTAW CREEK WATERSHED
Grayson County, Texas
June 1970

Problems Relating to Water Management

The city of Sherman has had a marked increase in population since the preparation of the work plan. This has resulted in an increased demand for recreational facilities for its new citizens. Floodwater retarding structure No. 10 is located in an area which has been annexed by the city and is currently undergoing development as a residential area. The city wishes to avail itself of the opportunity to include recreation storage in this structure at an extremely reasonable cost. The inclusion of this storage capacity will enhance the benefits obtained per dollar invested over the evaluation period and will benefit a greater number of people. The drainage area controlled by structural measures will remain as originally planned. There will be no change or reduction of damages or in the damage reduction benefits as shown in the November 1965 plan.

Works of Improvement To Be Installed

The Supplemental Watershed Work Plan Agreement provides for the addition of a multiple-purpose structure for flood prevention and recreation at the original location of floodwater retarding structure No. 10. This structure will hereinafter be designated as multiple-purpose structure No. 10A. The total storage in the reservoir will be 866 acre-feet, consisting of 190 acre-feet for sediment, 593 acre-feet for floodwater, and 83 acre-feet for recreation. The recreation pool will have a surface area of 30 acres. Approximately 85 acres will be required for the pool areas, dam, spillway, protective strip around the lake to control access, and for recreation facilities. Recreation facilities will be installed, wholly at the city's expense, as the demand warrants. Sanitary facilities meeting local and state standards will be provided prior to any public use of recreation facilities. Quality and quantity of water will be adequate for the purpose intended.

Explanation of Installation Costs

The installation cost of multiple-purpose structure No. 10A is estimated to be \$129,735, of which \$90,387 will be paid from Public Law 566 funds and \$39,348 from other funds. Public Law 566 costs consist of \$73,029 for construction; \$10,955 for engineering; and \$6,403 for administrative costs. Other funds consist of \$9,331 for construction; \$1,399 for engineering; \$818 for administrative costs; \$26,800 for land rights; \$500 for water rights; and \$500 for administration of contracts.

All additional costs involved for installation of the multiple-purpose structure over the cost estimate for a single-purpose floodwater retarding structure

designed under current criteria are allocated to recreation. The "Use of Facilities Method" of cost allocation was not used because the cost allocated to recreation did not equal the added costs of adding the storage.

The City of Sherman does not desire cost-share assistance for any costs allocated to recreation and will bear all costs, including land rights costs so allocated. The cost sharing summary for multiple-purpose structure No. 10A is shown in the following tabulation:

Item	: Total		: Estimated Sponsors'		: Estimated PL 566	
	: Cost		: Cost		: Cost	
	: Dollars	: Percent	: Dollars	: Percent	: Dollars	
Construction	82,360	11.33	9,331	88.67	73,029	
Installation Services	19,575	11.33	2,217	88.67	17,358	
Land, Easements, and Rights-of-Way	26,800	100.00	26,800	-	-	
Water Rights	500	100.00	500	-	-	
Administration of Contracts	500	100.00	500	-	-	
TOTAL	129,735		39,348		90,387	

Project Benefits

The City of Sherman plans to install recreational facilities as needed for the benefit of local residents. Adequate sanitary facilities meeting all local and state standards will be provided before the area is open to the general public. Swimming, picnicking, and fishing are expected to be the primary recreational uses. Peak use will occur between May 1 and Labor Day, but some use will be made of these facilities throughout the balance of the year. It is estimated that these facilities will provide 4,800 visitor-days of recreation annually and will produce \$4,159 in net recreation benefits.

Comparison of Benefits and Costs

The total average annual cost of the project is estimated to be \$314,582. The project measures are expected to produce benefits amounting to \$468,901, resulting in a benefit-cost ratio of 1.5:1.0.

Installation of Recreational Development

The City of Sherman will acquire, at no cost to the federal government, all land rights necessary for the installation of multiple-purpose structure No.



10A and will assume the financial responsibility for the share of construction and installation services costs allocated to recreation. The city will also provide recreational facilities, entirely at their own expense, for public use.

Bonds have been voted to finance their share of the cost for this and other watershed works of improvement, and negotiations are now under way with the Farmers Home Administration for a watershed loan.

Operation and Maintenance of Recreational Development

The recreational development will be available to the public generally, and will not be limited to certain segments or organized groups. The City of Sherman will operate and maintain multiple-purpose structure No. 10A and associated recreational facilities. The estimated cost of operation and maintenance of this structure and related recreational facilities to be installed by the city is estimated to be \$2,531. The estimated cost of operation and maintenance for recreational facilities is considered as an associated cost and was deducted from the gross value of recreation benefits. Operation and maintenance responsibilities for all other project measures will be in accordance with provisions of the original work plan.



TABLE 1 - ESTIMATED PROJECT INSTALLATION COST (REVISED)

Choctaw Creek Watershed

Grayson County, Texas

			Estimated Cost (Dollars) <u>1/</u>			
Installation Cost	:	: Number	:	Public Law	: Other	
Item	:	: Unit	: Applied	566 Funds	: Funds	: Total
<u>LAND TREATMENT</u>						
Soil Conservation Service						
Cropland	Acre	40,138	-	362,586	362,586	
Grassland	Acre	92,902	-	1,700,178	1,700,178	
Technical Assistance			25,267	170,924	196,191	
SCS Subtotal			25,267	2,233,688	2,258,955	
<u>TOTAL LAND TREATMENT</u>			25,267	2,233,688	2,258,955	
<u>STRUCTURAL MEASURES</u>						
Soil Conservation Service						
Floodwater Retarding						
Structures	No.	33	2,008,600	-	2,008,600	
Stream Channel Improvement	Foot	110,180	391,600	-	391,600	
Grade Stabilization Structures						
	No.	7	15,950	-	15,950	
Drainage Main and Laterals	Foot	21,600	5,775	1,925	7,700	
Multiple-Purpose Structures						
	No.	8	1,092,630	1,253,530	2,346,160	
Basic Recreational						
Facilities	No.	2	212,905	212,905	425,810	
Diversion Works	No.	2	-	150,000	150,000	
SCS Subtotal			3,727,460	1,618,360	5,345,820	
Subtotal - Construction			3,727,460	1,618,360	5,345,820	
<u>Installation Services</u>						
Soil Conservation Services						
Engineering Services			531,479	154,891	686,370	
Other			329,881	123,664	453,545	
SCS Subtotal			861,360	278,555	1,139,915	
Subtotal - Installation Services			861,360	278,555	1,139,915	
<u>Other Costs</u>						
Land, Easements, and						
Rights-of-Way			223,990	1,968,801	2,192,791	
Administration of Contracts			-	39,500	39,500	
Water Rights			-	7,700	7,700	
Subtotal - Other Costs			223,990	2,016,001	2,239,991	
<u>TOTAL STRUCTURAL MEASURES</u>			4,812,810	3,912,916	8,725,726	
<u>TOTAL PROJECT</u>			4,838,077	6,146,604	10,984,681	
<u>SUMMARY</u>						
Subtotal SCS			4,838,077	6,146,604	10,984,681	
<u>TOTAL PROJECT</u>			4,838,077	6,146,604	10,984,681	

^{1/} Price Base: 1970 for structure 10A; 1965 for all other structural measures

June 1970

TABLE 2 - ESTIMATED STRUCTURE COST DISTRIBUTION (REVISED)
Choctaw Creek Watershed, Grayson County, Texas

Structure Site Number or Name	Installation Cost - Public Law 566 Funds				Installation Cost - Other Funds				Total			
	Construc- tion	Engineer- ing	Other	Right-of-way	Law	Public	Total	Construc- tion	Engineer- ing	Other	Tracts	Way
Floodwater Retarding Structures												
2	60,500	9,075	5,304	-	74,879	-	-	500	-	-	-	14,525
3	70,400	10,560	6,173	-	87,133	-	-	500	-	-	-	30,325
5	57,200	10,296	5,146	-	72,642	-	-	500	-	-	-	16,325
6	53,900	9,702	4,850	-	68,452	-	-	500	-	-	-	11,700
7	51,700	9,306	4,651	-	65,657	-	-	500	-	-	-	10,375
8	53,900	9,702	4,850	-	68,452	-	-	500	-	-	-	24,450
9	84,700	12,705	7,426	-	104,831	-	-	500	-	-	-	35,600
11	104,500	13,585	9,004	-	127,089	-	-	500	-	-	-	293,066
12	56,100	10,098	5,048	-	71,246	-	-	500	-	-	-	7,900
14	41,800	7,524	3,760	-	53,084	-	-	500	-	-	-	15,125
15	58,300	10,494	5,246	-	74,040	-	-	500	-	-	-	10,700
16	45,100	8,118	4,056	-	57,274	-	-	500	-	-	-	5,725
17	67,100	10,065	5,884	-	83,049	-	-	500	-	-	-	12,525
18	89,100	13,365	7,813	-	110,278	-	-	500	-	-	-	17,000
19	70,400	10,560	6,173	-	87,133	-	-	500	-	-	-	11,125
20	52,800	9,504	4,750	-	67,054	-	-	500	-	-	-	9,150
21	38,500	8,470	3,580	-	50,550	-	-	500	-	-	-	5,025
22	74,800	11,220	6,559	-	92,579	-	-	500	-	-	-	28,575
23	45,100	8,118	4,056	-	57,274	-	-	500	-	-	-	8,325
24	74,800	11,220	6,559	-	92,579	-	-	500	-	-	-	30,450
25	44,000	7,920	3,958	-	55,878	-	-	500	-	-	-	9,025
26	100,100	13,013	8,625	-	121,738	-	-	500	-	-	-	24,975
27	48,400	8,712	4,355	-	61,467	-	-	500	-	-	-	6,150
28	56,100	10,098	5,048	-	71,246	-	-	500	-	-	-	9,350
29	61,600	9,240	5,358	-	76,198	-	-	500	-	-	-	7,450
31	85,800	12,870	7,524	-	106,194	-	-	500	-	-	-	21,650
32	35,200	7,744	3,274	-	46,218	-	-	500	-	-	-	7,025
33	55,000	9,900	4,949	-	69,849	-	-	500	-	-	-	8,475
36	66,000	9,900	5,787	-	81,687	-	-	500	-	-	-	15,325
37	64,900	9,735	5,691	-	80,326	-	-	500	-	-	-	45,150
39	39,600	8,712	3,684	-	51,996	-	-	500	-	-	-	7,100
40	35,200	7,744	3,274	-	46,218	-	-	500	-	-	-	6,200
41	66,000	9,900	5,787	-	81,687	-	-	500	-	-	-	17,425
Subtotal	2,008,600	329,175	178,202	-	2,515,977	-	-	-	16,500	-	-	799,291
Stream Channel Improvement												
Choctaw Creek	309,100	30,910	25,925	-	365,935	-	-	500	-	-	-	108,750
Post Oak Creek	68,200	10,230	5,979	-	84,409	-	-	500	-	-	-	53,750
Mill Creek	14,300	4,576	1,439	-	20,315	-	-	500	-	-	-	6,250
Subtotal	391,600	45,716	33,343	-	470,659	-	-	-	1,500	-	-	170,250
												640,909

TABLE 2 - ESTIMATED STRUCTURE COST DISTRIBUTION (REVISED) - Continued
Choctaw Creek Watershed, Grayson County, Texas

Structure Site Number or Name	Installation Cost - Public Law 566 Funds				Installation Cost - Other Funds										Total Installation Cost
	Construc- tion	Engineer- ing	Other	Way	Construc- tion	Engineer- ing	Other	Way	Con- tracts	Rights-of- Way	Water	Rights	Other		
Grade Stabilization															
Structures															
101	3,960	792	363	-	5,115	-	-	-	250	325	-	-	575	5,690	
102	5,060	1,012	463	-	6,535	-	-	-	250	275	-	-	525	7,060	
103	1,430	286	131	-	1,847	-	-	-	100	25	-	-	125	1,972	
104	1,210	242	111	-	1,563	-	-	-	100	25	-	-	125	1,688	
105	1,540	308	141	-	1,989	-	-	-	100	25	-	-	125	2,114	
106	1,540	308	141	-	1,989	-	-	-	100	25	-	-	125	2,114	
107	1,210	242	111	-	1,563	-	-	-	100	25	-	-	125	1,688	
Subtotal	15,950	3,190	1,461	-	20,601	-	-	-	1,000	725	-	-	1,725	22,326	
Multiple-Purpose															
Structures															
1	336,164	33,616	28,196	-	397,976	38,214	32,051	5,000	251,500	1,500	1,500	-	710,401	1,108,377	
4	166,320	16,632	13,950	-	196,902	29,568	24,800	5,000	181,500	1,500	1,500	-	538,048	734,950	
10A	73,029	10,955	6,403	-	90,387	9,331	818	500	26,800	500	500	-	39,348	129,735	
13	77,044	7,704	6,462	-	91,210	13,306	11,160	1,000	87,125	1,500	1,500	-	247,147	338,357	
Diversion Works	-	-	-	-	-	75,000	3,000	-	-	-	-	-	84,000	84,000	
30	73,960	9,622	6,373	-	89,955	55,840	4,812	1,000	34,000	1,000	1,000	-	103,917	193,872	
Diversion Works	-	-	-	-	-	75,000	3,000	-	-	-	-	-	84,000	84,000	
34	33,947	6,110	3,054	-	43,111	8,953	806	500	5,600	100	100	-	17,571	60,682	
Subtotal	760,464	84,639	64,438	-	909,541	103,364	80,447	13,000	586,525	6,100	6,100	-	1,824,432	2,733,973	
35	244,116	29,494	24,739	172,590	470,939	30,236	25,360	5,000	367,160	1,500	1,500	-	782,440	1,253,379	
Basic Recreational															
Facilities	140,800	14,080	11,809	42,500	209,189	14,080	11,809	1,000	44,500	-	-	-	212,189	421,378	
Subtotal	384,916	43,574	36,548	215,090	680,128	44,316	37,169	6,000	241,660	1,500	1,500	-	994,629	1,674,757	
38	88,050	15,510	9,066	8,400	121,026	15,350	-	-	500	14,400	100	30,350	151,376		
Basic Recreational															
Facilities	72,105	7,211	6,048	500	85,864	7,211	6,048	500	600	-	-	-	86,464	172,328	
Subtotal	160,155	22,721	15,114	8,900	206,890	87,455	7,211	6,048	1,000	315,000	100	116,814	323,704		
Subtotal - Multiple-Purpose															
Structures	1,305,535	150,934	116,100	223,990	1,796,559	154,891	123,664	20,000	1,013,185	7,700	2,935,875	-	4,732,434		
Drainage Main I and															
Laterals IA, IB,															
IC	5,775	2,464	775	-	9,014	-	-	500	3,350	-	-	-	5,775	14,789	
TOTAL PROJECT	3,727,460	531,479	329,881	223,990	4,812,810	1,618,360	123,664	39,500	1,968,801	7,700	3,912,916	-	8,725,726		

1/ Price Base: 1970 for structure 10A; 1965 for all other structural measures

2/ Includes the cost of flowage easements, legal fees, and land surveys which are not eligible for cost sharing (\$18,750).

3/ Includes the cost of flowage easements, legal fees, and land surveys which are not eligible for cost sharing (\$6,100).

June 1970

TABLE 2A - COST ALLOCATION AND COST SHARING SUMMARY (REVISED)

Choctaw Creek Watershed
Grayson County, Texas
(Dollars) 1/

Item	Purpose					
	Flood Prevention	Municipal	Water Supply	Irrigation	Drainage	Recreation
						Total
<u>Single-Purpose</u>						
33 Floodwater Retarding Structures, 110,180 feet of Stream Channel Improvement, 7 Grade Stabilization Structures	3,978,503	-	-	-	-	3,978,503
<u>Multiple-Purpose</u>						
Structure No. 1	518,018	590,359	-	-	-	1,108,377
Structure No. 4	264,042	470,908	-	-	-	734,950
Structure No. 10A	115,072	-	-	-	14,663	129,735
Structure No. 13	123,525	298,832	-	-	-	422,357
Structure No. 30	109,899	167,973	-	-	-	277,872
Structure No. 34	47,939	-	-	-	-	60,682
Structure No. 35	232,920	545,119	-	-	896,718	1,674,757
Structure No. 38	95,331	-	-	-	228,373	323,704
21,600 feet of Drainage Main and Laterals	7,395	-	-	-	7,394	14,789
TOTAL	5,492,644	2,073,191	12,743	7,394	1,139,754	8,725,726
<u>COST SHARING</u>						
Public Law 566	4,241,054	-	-	3,544	568,212	4,812,810
Other	1,251,590	2,073,191	12,743	3,850	571,542	3,912,916
TOTAL	5,492,644	2,073,191	12,743	7,394	1,139,754	8,725,726

1/ Price Base: 1970 for structure 10A; 1965 for all other structural measures.

June 1970

TABLE 3 - STRUCTURE DATA - FLOODWATER RETARDING STRUCTURES (REVISED)
Choctaw Creek Watershed
Grayson County, Texas

Item	:	: Structure No.:		Total
		: Unit	: 10A	
Drainage Area		Sq. Mi.	1.64	112,57
Storage Capacity				
Sediment Pool (50-Yr. or 200 Ac. Ft.)		Ac. Ft.	-	3,851
Sediment Reserve (Below Riser - 50-Yr.)		Ac. Ft.	-	278
Sediment in Water Supply Pool		Ac. Ft.	$\frac{1}{168}$	3,790
Sediment in Detention Pool		Ac. Ft.	$\frac{2}{22}$	3,821
Water Supply Pool		Ac. Ft.	$\frac{2}{83}$	27,301
Floodwater Pool		Ac. Ft.	593	42,735
Total		Ac. Ft.	866	81,776
Surface Area				
Sediment Pool (50-Yr. or 200 Ac. Ft.)		Acre	-	668
Sediment Reserve (Below Riser)		Acre	-	159
Water Supply Pool		Acre	30	1,818
Floodwater Pool		Acre	63	5,290
Volume of Fill		Cu. Yd.	131,300	7,337,600
Elevation Top of Dam ^{3/}		Foot	750.9	xxx
Maximum Height of Dam ^{4/}		Foot	52	xxx
Emergency Spillway				
Crest Elevation		Foot	743	xxx
Bottom Width		Foot	120	xxx
Type			Veg.	xxx
Percent Chance of Use ^{5/}			1.0	xxx
Average Curve No. - Condition II			82	xxx
Emergency Spillway Hydrograph				
Storm Rainfall (6-Hour) ^{6/}		Inch	13.00	xxx
Storm Runoff		Inch	10.69	xxx
Velocity of Flow (V _e)		Ft./Sec.	6.6	xxx
Discharge Rate		C.F.S.	830	xxx
Maximum Water Surface Elevation ^{3/}		Foot	745.3	xxx
Freeboard Hydrograph				
Storm Rainfall (6-Hour) ^{6/}		Inch	30.50	xxx
Storm Runoff		Inch	28.00	xxx
Velocity of Flow (V _e)		Ft./Sec.	13.2	xxx
Discharge Rate ^{3/}		C.F.S.	7,280	xxx
Maximum Water Surface Elevation ^{3/}		Foot	750.9	xxx
Principal Spillway				
Capacity (Maximum)		C.F.S.	125	xxx
Capacity Equivalents				
Sediment Volume		Inch	-	xxx
Sediment Reserve Volume (Below Riser)		Inch	-	xxx
Sediment in Water Supply Pool		Inch	1.92	xxx
Sediment in Detention Pool		Inch	.25	xxx
Water Supply Pool		Inch	.95	xxx
Detention Volume		Inch	6.78	xxx
Spillway Storage		Inch	7.50	xxx
Class of Structure			C	xxx

June 1970

- 1/ Includes submerged portion of 100-year sediment accumulation, consisting of 85 acre-feet for first 50 years and 83 acre-feet for second 50 years
- 2/ Recreation water
- 3/ Values obtained from routing
- 4/ Difference in elevation between top of the settled dam and the bottom of the stream channel
- 5/ Is the average number of times the emergency spillway will be expected to function in 100 years.
- 6/ Based on Engineering-Hydrology Memorandum TX-1, "Emergency Spillway and Freeboard Hydrograph Development," August 16, 1965.

June 1970



TABLE 4 - ANNUAL COST (REVISED)

Choctaw Creek Watershed
Grayson County, Texas

(Dollars)^{1/}

Evaluation Unit	:Amortization of: : Installation : Cost	:Operation and: : Maintenance : : Cost ^{2/}	: Total
33 Floodwater Retarding Structures; 110,180 feet of Stream Channel Improvement; Multiple-Purpose Structures 1, 4, 10A, 13, 30, 34, 35, and 38, including Basic Recrea- tional Facilities; and Grade Stabilization Structures 101, 102, 103, 104, 106, and 107	285,447	28,130	313,577
21,600 feet of Drainage Main and Laterals and Grade Stabilization Structure 105	553	452	1,005
TOTAL	^{3/} 286,000	^{4/} 28,582	314,582

^{1/} Price Base: 1970 for structure 10A; 1965 for all other structural measures.

^{2/} Long-term prices as projected by ARS, September 1957.

^{3/} Amortized for 100 years at 3.125 percent, except for multiple-purpose structure No. 10A, which was amortized at 3.25 percent.

^{4/} Includes replacement costs of \$2,016 for basic recreational facilities and for any structure or appurtenance requiring replacement before end of 100-year evaluation period.

June 1970

TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES (REVISED)

Choctaw Creek Watershed
Grayson County, Texas
(Dollars)

Evaluation Unit	Flood Prevention	AVERAGE ANNUAL BENEFITS ^{1/}				Total	Average Annual Cost ^{2/}	Benefit-Cost Ratio
		Agricultural Water Management	Non-Agricultural Water Management	Municipal Water Supply	Recreation			
33 Floodwater Retarding Structures; 110,180 feet of Stream Channel Improvement; Multiple-Purpose Structures 1, 4, 10A, 13, 30, 34, 35, and 38, Including Basic Recreational Facilities; and Grade Stabilization Structures, 101, 102, 103, 104, 106, and 107 ^{3/}	197,039	4,236	2,331	67,918	157,757	37,165	466,446	313,577 1.5:1.0
21,600 feet of Drainage Main and Laterals and Grade Stabilization Structure 105	950		950			555	2,455	1,005 2.4:1.0
GRAND TOTAL ^{4/}	197,039	4,236	2,331	950	157,757	37,720	468,901	314,582 1.5:1.0

^{1/} Price Base:^{2/} From table 4.^{3/} Interrelated measures.^{4/} In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$8,847 annually.

June 1970



